# THE Chemist

OCTOBER, 1945 VOLUME XXII, No. 10

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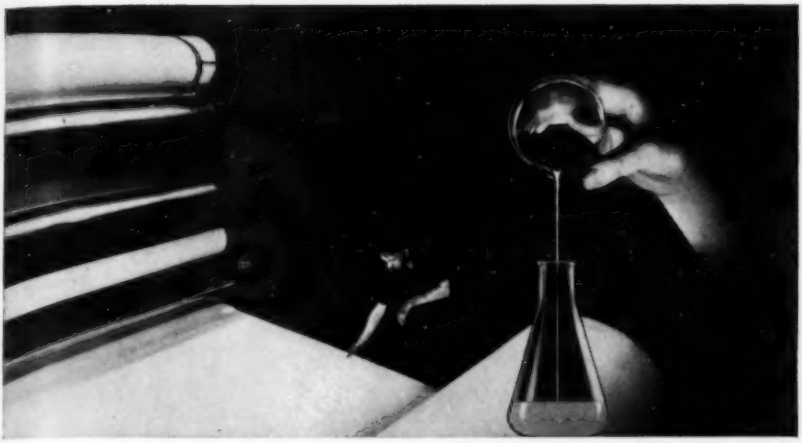

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# The Chemist

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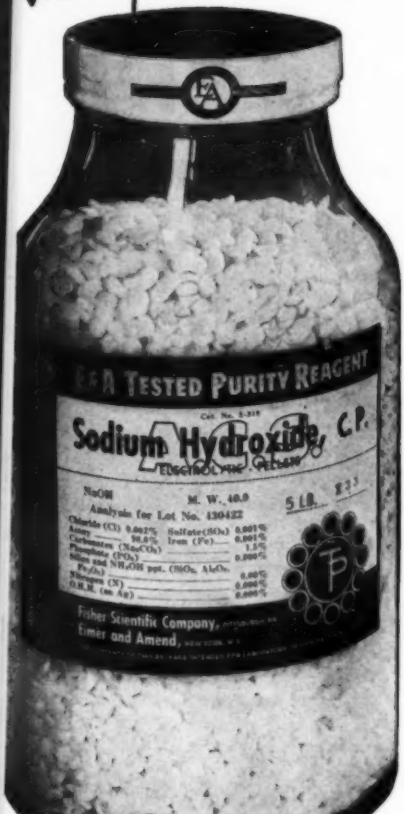


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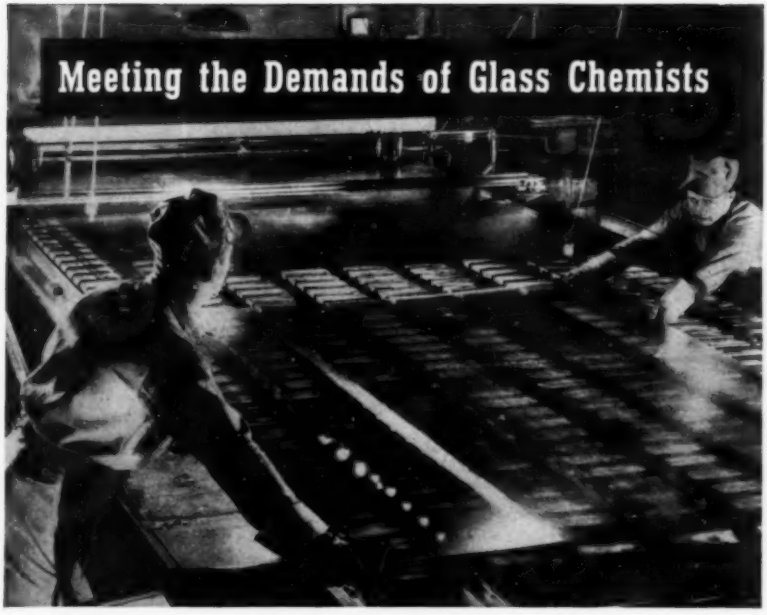


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MEN with ideas have built the petroleum industry. But there may be a wide gap between the origination of a good idea and its successful application in service.

The idea may seem good but extensive research and experimentation may be needed to verify its usefulness . . . to establish the design of equipment . . . the proper procedures for practical use . . . the actual costs of operation.

Corollary research may be needed on such problems as recovery of solvents, control mechanisms, metering devices . . .

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# Science—the Endless Frontier

**Raymond E. Kirk, F. A. I. C.**

## A Summary of the Bush Report

THIS is the report to the President on a program for postwar scientific research, by Vannevar Bush, director of the Office of Scientific Research and Development. The origin of this report is well-known to chemists. On November 17th, 1944, President Roosevelt asked Dr. Bush to prepare recommendations covering four major points. Dr. Bush sought the assistance of special committees to advise him on each of the four major points. The report here summarized represents Dr. Bush's conclusions together with the committee reports given as appendices. Each interested American will welcome this study. It deserves widespread distribution and complete discussion.

No one in the future can presume to speak about Science in America without being familiar with this report and with its conclusions. If one differs with these conclusions, he is forced to respect the factual material found in the appendices, and to present alternative recommendations.

The first argument of the report is that scientific progress is essential to national well being.

> "Progress in the war against disease depends upon the flow of new scientific knowledge. New products, new industries, and more jobs require continuous additions to knowledge of the laws of nature, and the application of that knowledge to practical purposes. Similarly our defense against aggression demands new knowledge so that we can develop new and improved weapons. This essential, new knowledge can be obtained only through basic scientific research.
>
> "Science can be effective in the national welfare only as a member of a team, whether the conditions be peace or war. But without scientific progress no amount of achivement in other direction can insure our health, prosperity, and security as a nation in the modern world."

With these statements there seems to be little disagreement possible. Next one finds a well reasoned ar-

gument for the increase of scientific capital in America.

"How do we increase this scientific capital? First, we must have plenty of men and women trained in science, for upon them depends both the creation of new knowledge and its application to practical purposes. Second, we must strengthen the centers of basic research which are principally the colleges, universities, and research institutes. These institutions provide the environment which is most conducive to the creation of new scientific knowledge and least under pressure for immediate, tangible results. With some notable exceptions, most research in industry and in Government involves application of existing scientific knowledge to practical problems. It is only the colleges, universities, and a few research institutes that devote most of their research efforts to expanding the frontiers of knowledge."

The final argument deals with the necessity for the renewing of scientific talent.

"The most important ways in which the Government can promote industrial research are to increase the flow of new scientific knowledge through support of basic research, and to aid in the development of scientific talent. In addition, the Government should provide suitable incentives to industry to conduct research, (a) by clarification of present uncertainties in the Internal Revenue Code in regard to the deductibility of research and development expenditures as current charges against net income, and (b) by strengthening the patent system so as to eliminate uncertainties which now bear heavily on small industries and so as to prevent abuses which reflect discredit upon a basically sound system. In addition, ways should be found to cause the benefits of basic research to reach industries which do not now utilize new scientific knowledge.

"The responsibility for the creation of new scientific knowledge —and for most of its application—rests on that small body of men and women who understand the fundamental laws of nature and are skilled in the techniques of scientific research. We shall have rapid or slow advance on any scientific frontier depending on the number of highly qualified and trained scientists exploring it.

"The deficit of science and technology students who, but for the war, would have received bachelor's degrees is about 150,000. It is estimated that the deficit of those obtaining advanced degrees in these fields will

amount in 1955 to about 17,000—for it takes at least six years from college entry to achieve a doctor's degree or its equivalent in science and engineering. The real ceiling in our productivity of new scientific knowledge and its application in the war against disease, and the development of new products and new industries, is the number of trained scientists available.

"The training of a scientist is a long and expensive process. Studies clearly show that there are talented individuals in every part of the population, but with few exceptions, those without the means of buying higher education go without it. If ability, and not the circumstance of family fortune, determines who shall receive higher education in science, then we shall be assured of constantly improving quality at every level of scientific activity. The Government should provide a reasonable number of undergraduate scholarships and graduate fellowships in order to develop scientific talent in American youth. The plans should be designed to attract into science only that proportion of youthful talent appropriate to the needs of science in relation to the other needs of the nation for high abilities."

There follows a section regarding the importance of publication of fundamental information developed during the war.

> "While most of the war research has involved the application of existing scientific knowledge to the problems of war, rather than basic research, there has been accumulated a vast amount of information relating to the application of science to particular problems. Much of this can be used by industry. It is also needed for teaching in the colleges and universities here and in the Armed Forces Institute overseas. Some of this information must remain secret, but most of it should be made public as soon as there is ground for belief that the enemy will not be able to turn it against us in this war. To select that portion which should be made public, to coordinate its release, and definitely to encourage its publication, a Board composed of Army, Navy and civilian scientific members should be promptly established."

It is inevitable in human and political affairs that programs for action are always more controversial than statements about general principles. Nevertheless the facts in this Report call for action. Dr. Bush's committees have suggested specific programs. These must now be subjected to the full force of the demo-

cratic processes of America. Temperate criticism is an excellent counteractive for any possible over-enthusiasm of specific committees.

"The Government should accept new responsibilities for promoting the flow of new scientific knowledge and the development of scientific talent in our youth. These responsibilities are the proper concern of the Government, for they vitally affect our health, our jobs, and our national security. It is in keeping also with the basic United States policy that the Government should foster the opening of new frontiers and this is the modern way to do it. For many years the Government has wisely supported research in the agricultural colleges and the benefits have been great. The time has come when such support should be extended to other fields.

"The effective discharge of these new responsibilities will require the full attention of some over-all agency devoted to that purpose. There is not now in the permanent Governmental structure receiving its funds from Congress, an agency adapted to supplementing the support of basic research in the colleges, universities, and research institutes, both in medicine and the natural sciences, adapted to supporting research on new weapons for both Services, or adapted to administering a program of science scholarships and fellowships.

"Therefore I recommend that a new agency for these purposes be established. Such an agency should be composed of persons of broad interest and experience, having an understanding of the peculiarities of scientific research and scientific education. It should have stability of funds so that long-range programs may be undertaken. It should recognize that freedom of inquiry must be preserved and should leave internal control of policy, personnel, and the method and scope of research to the institutions in which it is carried on. It should be fully responsible to the President and through him to the Congress, for its program.

"Early action on these recommendations is imperative if this nation is to meet the challenge of science in the crucial years ahead. On the wisdom with which we bring science to bear in the war against disease, in the creation of new industries, and in the strengthening of our Armed Forces depends in a large measure our future as a nation."

It is understood that a bill has been introduced in the Senate by Senator Magnussen of Washington, which will provide for the implemen-

tation of the Bush report. It is understood that the Committee hearings on these and related bills will begin soon after Congress reassembles. It is hoped that American chemists will study the Bush report and will prepare to make their views known to Congress through appropriate persons and agencies.

*(The Bush report, entitled "Science, The Endless Frontier", is published by the Superintendent of Documents, Washington, D. C., and priced at thirty cents.)*

# Research Expansion Programs

**Standard Oil Company of New Jersey:** Eugene Holman, president, announces that two major petroleum research centers, one at Linden, N. J., and the other at Baton Rouge, Louisiana, are under construction. This is part of Standard's expanded research program which may involve the expenditure of $8,000,000. The buildings scheduled for completion by the end of 1946, will provide research facilities for scientists of the Standard Oil Development Company. The present research staff of 2100 will be increased twenty per cent. Dr. Eger V. Murphree, vice president of the Development Company, said the new research centers will develop improved products, study low temperature polymerization, and the application of catalytic processes.

**Celanese Corporation of America:** The Edison Junior High School buildings in Summit, New Jersey, have been purchased by Celanese for the purpose of reconversion into research laboratories where the company's technological and research activities will be concentrated. The staff of 500 scientists, chemists, and technicians, will carry on work there, which is now being done at various plants, on plastics, textiles, and chemicals.

**General Printing Ink Corporation:** With the purchase of the A. C. Horn Company, manufacturer of paints, varnish, and allied products, General Printing Ink announced that a consolidated research laboratory will be established in the New York metropolitan area to conduct research on resins, pigments, and oils. In addition manufacturing facilities in Norwood, Mass., Chicago, San Francisco, and Los Angeles, will be increased.

**The Elliott Company, Jeannette, Penna.:** Grant B. Shipley, president, announces the construction of a new test laboratory to extend the facilities of the research engineering division. The laboratory will cost $750,000.

**Kimberly-Clark Corporation,** Neenah, Wis.: A new commercial technical laboratory is being built to provide centralized facilities for 160 scientists and additional research per-

sonnel. The laboratory is being designed to become the most complete in the paper industry.

**General Electric Company:** Dr. W. R. G. Baker, vice president, announces the beginning of construction for the erection of ten buildings on a 155-acre site, as a center of electronics manufacturing activities. The development will cost about $10,000,000, and is expected to be completed in 1946. Five-thousand persons will be employed there.

**General Motors:** Alfred P. Sloan, Jr., chairman, announces plans for a General Motors Technical Center, to provide facilities for the corporation's research, advanced engineering, styling and process development sections. The center is being erected on 350 acres of ground outside of Detroit, Michigan. "Facilities are only a part of the story of the Technical Center conception," stated Charles F. Kettering, vice president and director of research. "The more important factor has not been overlooked—the men to use these new facilities—the men who can make ideas grow into material things. We know the problems of the future are going to require for their solution not only the best facilities but the ablest of men to use them intelligently."

**Johns-Manville Corporation:** Lewis H. Brown, president, stated that the initial step in a $40,000,000 expansion program is now underway with construction started near Bound Brook, N. J., on a plant which will provide "the largest research facilities in the world devoted to building materials and industrial products development." Dr. C. F. Rassweiler, vice president and director of research, said the first unit of the plant, costing $2,000,000 will provide "ten experimental factories under one roof."Projects started in the research laboratory thus may be carried through development and pilot plant stages, speeding up the time necessary to get manufacturing production. The new program is expected to provide 25 per cent more jobs than were available before the war, when the company employed 12,000 persons.

**Monsanto Chemical Company:** Francis J. Curtis, F.A.I.C., vice president in charge of long range planning, announces that Monsanto has listed 151 construction and expansion projects involving an estimated $48,400,000 for consideration as a part of its postwar program. Among these are expanded facilities for presently produced chemicals; production of new chemicals; new pilot plants, power plants, warehouses, office structures, and research laboratories.

*(To be Continued)*

Hercules Powder Company announces that menthylphenol, used to prevent ethyl cellulose plastics from becoming brittle, and for other purposes, is now available commercially.

# The Employed Chemist and His Employer

(*Continued from* THE CHEMIST *September* 1945)

**11. Does the Company Offer Group Life, Health and Accident Insurance Plans?**

Most modern employers offer such plans. These are usually carried as group insurance policies by insurance companies, and are in general highly favorable to the employee, since the company usually pays a substantial share of the premium, the balance being deducted from the employee's salary.

Group life insurance is a form of term insurance which terminates with employment. It is an advantage of some plans that such insurance is convertible to straight life insurance when leaving employment, upon payment of the difference in premium but without a new medical examination.

Group health and accident insurance policies usually pay a fixed amount per day for illness continuing after a minimum number of days. They are usually limited in the length of time such payments continue. Accident provisions are for injuries sustained outside of company duties, since in most states the employer is liable for injuries sustained on the job.

Many companies offer a group hospitalization plan at reduced rates to an employee, which covers hospital expenses for himself or a member of his family.

All such forms of insurance offered at reduced rates, or paid entirely by the company, have a cash value to the employee which, however, may be difficult to compute. Availability of such plans is just one more indication that the company values the goodwill and welfare of its employees.

**12. Does the company maintain medical service for employees?**

The size of the Company's Medical Staff and program will depend to a considerable extent on the geographical location, size of the working force and nature of the work. If located in or near a large city with adequate medical and hospital facilities readily available, the company will need to provide much less than if the location is a remote one. Likewise, if the working unit is engaged for the most part in such activities

as sales or clerical work involving relatively few hazards, the medical facilities need be less elaborate than would be the case if the major activity is, for example, manufacturing. Assuming a reasonably sized working force engaged in activities involving possibilities of accidents, the company will be very likely to have one or more physicians on duty, or readily available, and probably a dispensary for first aid and minor treatments.

Such a staff will make physical examinations of those applying for positions; of employees returning to work after serious illnesses; employees scheduled for jobs where there may be exposure to toxic materials, etc. Many companies also examine all employees on an annual or other fixed schedule, as an aid in maintaining their health. Some also provide X-ray and other diagnostic services in cooperation with a doctor treating illness not contracted on the job.

The medical staff also has an active part in preventive programs by prompt treatment of minor injuries and incipient illnesses. They advise on first-aid programs, accident prevention, and precautions against toxic chemicals.

The cash value to the chemist of an adequate company medical service may be a minor part of the total return but is of importance in reflecting an attitude of management favorable to its employees. (Further insight into this subject may be gleaned by an inspection of washroom and restaurant facilities.)

**13. What is the policy on attendance at scientific meetings?**

Many companies view such attendance with favor for two reasons. First, they realize that a liberal policy attracts desirable personnel; and secondly, they realize the responsibility of professional personnel in carrying out the work of the technical societies through which industry benefits. It follows that in many cases memberships are maintained by the company for key personnel in a number of societies and these men regularly attend meetings at company expense.

For newer employees not yet in key positions, time-off to attend meetings and the paying of the expenses incurred often depend upon evidence of the individual's interest as judged by whether he maintains a membership and attends local meetings. Some companies decide upon the number from their staff to whom they will give permission to attend a specified meeting, taking into account the travel time and expense involved as well as the relation to the work. Deducting the number of regular attendees, a residual number is derived which is rotated among the junior employees so that each gets his turn within a reasonable period.

There are still a few concerns that discourage attendance at scientific meetings in the fear that company

secrets will be divulged. Such an attitude is usually accompanied by other policies equally distasteful to research men, with resultant high turnover in chemical personnel. The company loses more than it saves for its scientists will betray the in-breeding to which their thoughts have been subject and this will become evident in the dearth of new ideas. Reading scientific literature can never replace the stimulation of personal contacts in scientific discussions and attendance at lectures as a source of new ideas.

**14. Is publication of original research permitted? Encouraged?**

Here again most companies pursue a liberal policy in order to attract desirable personnel and because of the realization that they owe a debt to scientific literature which can only be paid by their own contributions. They also recognize the good-will and advertising value of publication to their staff, customers, and the general public.

Permission to publish, or more particularly the time of publication, will depend upon the nature of the findings. Fundamental research is usually published fairly promptly. However, research which has a possibility of leading to patents or to new processes or products obviously cannot be disclosed until decision has been reached as to policy and procedure with respect to securing patent protection. The timing of the publication of results in such cases must depend upon the circumstances, and no general rule can be given. The best indication of satisfactory practice from the viewpoint of the scientific staff would be the satisfaction of the staff that just decisions have been made.

Some companies refuse permission to publish scientific work except in the form of patents, which are, in certain respects, unsatisfactory substitutes for articles in scientific and technical journals. Recognition for one's scientific attainments through publication is so large a part of the research chemist's intangible return on his work, that companies which do not reward him in this way should offer other adequate compensations.

It would be quite proper and very informative to inquire as to the availability of a chronological list of publications of the laboratory and its personnel as an indication of the scope of their activities.

**15. Shall I be encouraged to work out my ideas?**

Inasmuch as the success of research organizations is primarily dependent on the generation and prosecution of new ideas, thoughtful research directors do all in their power to aid this process. They realize that the father of an idea is more likely

to be interested in its growth than a stepfather would be. They, therefore, will favor the initial development by the originator if this is at all possible.

It must be realized, however, that if a specialist in organic chemistry turns in a suggestion for an improvement in a welding process, the development of the idea will probably best be carried out by specialists in that field. In such a case, however, the originator should have full knowledge of the course of the work and full opportunity to make suggestions concerning it.

Perhaps more important than the question as to who is to develop the idea, is the question whether it shall receive any development. This will be decided by the research management taking into account, in the case of a commercial organization, what profit or other advantage would accrue to the company through a successful development and what the probability of success appears to be. In non-commercial organizations other criteria, determined by the nature and purpose of the organization, will be applied. If the decision is not to proceed, a full explanation of the reasons is the best insurance against dissatisfaction on the part of the originator.

There are, unfortunately, a very few directors of research who maintain such close supervision and control of the work that the individual chemist, in time, feels that he is little more than a pair of hands carrying out another's ideas.

Even worse is the research director whose ego is so colossal that he refuses to permit work along lines which he has not conceived. In the event some idea not his own was injected into the solution of a problem, he neglects to give the originator full credit—he may even maintain that this was a part of his own broad concept! Such a man may be a brilliant chemist, but no man with ideas of his own will be happy working for him.

Some insight into situations of this kind may be obtained from scrutiny of the patents and publications of the company by noting whether there are a variety of names involved or whether the work *appears* to result from one man's ability.

**16. Does the company sponsor further education by a company training program or other assistance?**

The man who receives a degree from a college and thinks his education is complete is in for disillusionment. If he wishes to advance, he will have to continue to learn by every means possible. Since it is in the company's interest to have highly trained and proficient men in its employment, a progressive company will aid the further education of its employees in a number of ways. It may pay all or part of the tuition for night

school or extension course studies; it may offer company classes on a variety of subjects; it may hire speakers to lecture on recent developments; or it may have a company training course with a definite curriculum designed to fit a man for supervisory or other specialized jobs.

The answer to this question will help gauge whether the company takes the proper interest in its own, and in its employee's welfare to their mutual advancement. The cash value of such training should not be overlooked in computing real earnings.

**17. What are the library facilities? Are chemists encouraged to use them?**

Large companies will usually have libraries well stocked with the more frequently used reference works and chemical journals. Small companies may not have these facilities but should then be located so that their chemists have access to well-equipped public libraries. Inability to consult the literature places a serious handicap on all research chemists. Companies lacking or having grossly inadequate library facilities should be shunned when seeking employment because such facilities are essential tools of the chemist without which he is prone to stagnate.

Some companies, while having a good library, frown on chemists "wasting time" there. Time *can* be wasted in the library but companies who adopt this attitude should be avoided. Chemists should be judged on their output of ideas and results rather than on the time spent holding a test tube. Libraries are fertile fields for the germination of ideas. They are just as important in checking to see whether ideas *are* new, because much time can be wasted in duplicating work that others have done.

A liberal policy on circulation of current journals and on loan of library materials is desirable. Chemists who have sufficient interest and ambition to wish to use the library facilities after regular hours should be accommodated.

**18. Shall I be required to punch a time clock?**

Where required, this is seemingly a trivial inconvenience at most and hardly worthy of consideration in deciding on employment. However, it may be another indication of the management's attitude.

There may be some justification for chemists punching time clocks when the laboratories are so located that all types of salaried personnel use the same entrance. It is true of many employees that they should be paid for actual time spent on the job, hence the justification of a time-clock to show that the employee was at least at his place of work for a certain number of hours a day. Under these conditions to exempt chemists or other groups would create a

morale problem that many managements try to avoid by a rule that everyone must punch the clock.

In other organizations, only those below a certain managerial level must punch the clocks. Here chemists have a legitimate complaint if they are required to do so, because chemists, like managers, should not be paid for what they contribute to the company at certain specified hours of the day. If that were so, the invention that is conceived during a restless night should not be company property; the company has not paid for the time. Rather, chemists should be paid in proportion to what they contribute to the success of the company on the average of a year's work or more. Their pay will be largely for ideas and the practical embodiments of ideas, therefore the time-clock is no measure of what the company owes them.

There is thus no justification of time-clocks for professional chemists in isolated laboratories. Insistance on use of the clocks under such circumstances is an indication that the management does not have a proper attitude toward the scientific staff.

This in no way implies that chemists should be entirely free to come and go as they please in an industrial laboratory. Industrial research depends in large measure for its success on team-work and team-work is hardly possible unless the team is together,.

**19. What are living conditions for my family?**

If married, this can be a very important factor in the decision of whether to accept a position or not. The kind of community where a chemist and his family can enjoy happy, healthful lives, and where his children can be reared in an environment to his liking are vital considerations. If the laboratory or plant is isolated so that there is only one community in which to live, this will bear close scrutiny to see whether it measures up to one's needs. Availability of medical care, of schools and of a church of the desired denomination should not be overlooked.

The cost of living varies considerably between different localities; consequently, close attention should be paid to this factor. Rents, fuel, food, clothing, state and local taxes, transportation and recreation costs are the main items to be considered but are difficult to evaluate between different localities unless one has lived in both. In the absence of personal experience, opinions of friends are perhaps the best guide, but several opinions should be obtained and weighed as objectively as possible.

**20. What recreational facilities are available in the community? Sponsored by the company?**

If the place of work is located in a large city, there will usually be ample recreational facilities, but if in

a small town, these may be lacking. Without access to his favorite sport or other recreational facilities, the chemist who has been taught to enjoy a variety of these by his college training may find life dull. He should assure himself that he can find such amusement and exercise as he requires for health and happiness, before accepting a position.

Many companies sponsor a variety of sport facilities and entertainment features for their employees regardless of what may be available in the community. Such sports as golf, tennis, swimming, table tennis, baseball, bowling, and basketball may be provided at minimum charge and may be organized into inter-and intracompany competitions. The company may also sponsor picnics, glee-clubs, dramatic clubs, bridge matches, chess and checker tournaments, etc. All these usually pay dividends to the company by promoting the good-will, loyalty and health of its employees.

The direct cash value of such facilities and the pleasure to be derived should be weighed in choosing the position.

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## Kirkpatrick to Receive Chemical Industry Medal

Sidney D. Kirkpatrick, editor of *Chemical and Metallurgical Engineering,* will receive the 1945 award of the Chemical Industry Medal of the American Section of the Society of Chemical Industry. Mr. Kirkpatrick was chosen for leadership, executive competence, and for his contributions to the advancement of chemical engineering and research. The medal will be presented at a meeting of the Society in November.

John T. Eiker, 3rd., A.A.I.C., formerly with The Calvert Distilling Corporation, Louisville, Ky., is now with Fleischmann Distilling Corporation, Peekskill, New York.

## Keyes to Receive Honor Scroll

Dr. Donald B. Keyes, F.A.I.C., director of the Office of Production, Research and Development of the War Production Board, and head of the Chemical Engineering Division of the University of Illinois, has been elected to receive the Honor Scroll of the Chicago Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, awarded for outstanding contribution to chemistry or chemical engineering. Presentation of the award will be made at a dinner, October 26th, at Huyler's Restaurant, 310 South Michigan Avenue, Chicago.

Dr. Keyes is honored in recognition of distinguished achievements in chemical engineering practice, in teaching, and in wartime service to the government. He has been on leave from the university during the war.

Speakers at the dinner will be Dr. Gustav Egloff, president of THE AMERICAN INSTITUTE OF CHEMISTS, who will talk on "Keyes the Man"; Dr. Albert L. Elder, director of research, Corn Products Refining Company, "Keyes and His Achievements"; and Lawrence Brown, assistant director and reconversion officer of the Chemicals Bureau of the War Production Board, "Keyes and Chemicals During World War II." The scroll will be presented by Dr. H. R. Kraybill, chairman of the Chicago Chapter of THE AMERICAN INSTITUTE OF CHEMISTS.

## Metal Organics, Inc. Formed

Metal Organics, Inc., has been formed to produce phenyl mercury and other metallic compounds and to do research in this field, according to an announcement by W. M. Stieh, president of Metalsalts Corporation, Paterson, N. J., and Dr. Edmund Lowe, president of Edwal Laboratories, Chicago. Mr. Stieh is president of the new company. Other officers include Dr. Walter Guthman, vice-president and treasurer; Robert O. Weiss, vice-president, and Dr. Lowe, secretary. Metal Organics will establish plants in New Jersey and Illinois, with sales offices in New York, Chicago, and San Francisco.

# The Licensing of Professional Men

**H. A. Wagner**

*American Association of Engineers*

THE American Association of Engineers finds that the arguments which support registration for engineers are equally valid in support of registration or licensing of chemists. The Association, which more than any other organization, was responsible for securing enactment of the large number of engineering registration laws adopted during the 20's, understands the difficulties which the chemists face.

Engineering coud not secure adoption of stringent laws in the beginning. There was opposition within the profession from complacently eminent engineers who declared that the interests of the public were fully safeguarded in the membership requirements of the Founder Societies. Thus these requirements became the statutory requirement for licensure. There was suspicion among the nonprofessional artisans and mechanics who had assumed the title "engineer" as it was used colloquially, that professional engineers intended to encroach on their fields, and this opposition grew, made more acrimonious by a bitter and profitless contest over use of the title. Engineering's registration laws cover only a minute fraction of its members. They serve to deny professional status to those who are not qualified for responsible charge. This has left the whole "preprofessional" field open to competition of the ill-trained or untrained. It has also left these men unprotected against absorption in heterogeneous bargaining units and representation by scores of competitive labor unions under the Wagner Act.

Chemists might well take warning from the ineffectualities of engineering's registration laws and be sure that their own define the status of "chemical internes" and protect their field of practice. Apparently it is just as difficult to strengthen weak laws as it is to enact effective laws in the beginning.

Even more urgent a reason for effective licensure of chemists is the fact that it would promote integration of all the technological professions in some sort of inclusive society in which engineers, architects, and chemists, the whole scientific fraternity, might carry their collective

social responsibilities. Until technologists show a disposition to assume these responsibilities and set up an agency to perform the services that society has a right to expect from men trained in tax-supported institutions, we can expect a series of Kilgore bills to "mobilize science and technology" and to subsidize research and development and bring technology under the sort of control that was achieved in Germany or such "socialization" as Russia has developed.

No integration is possible until the professions can establish statutory boundaries of their fields of practice. Until it can be determined officially "who is an engineer," "who is a chemist," who belongs to the "profession"—no integration is possible. At this time, such boundaries can not be established by academic definition. The professions have merged with the mechanical arts, crafts, and trades. The boundaries cannot be marked out by unilateral action. Only an authoritative agency, by means of a comprehensive classification, can now draw the line between the professions and the crafts. This is the form of amendment that American Association of Engineers is seeking to incorporate in the new Federal Industrial Relations Act or in an independent amendment to the Wagner Act, coupled with a directive to the Board that technologists (as differentiated from non-professional technicians) be permitted to organize autonomously.

Chemists should study the decision of the Illinois Supreme Court which declared the 1941 Illinois Engineering Registration Act invalid, principally because its definitions were vague, uncertain and indefinite in a degree that amounted to denial of due process and delegation of legislative authority. The definitions so discredited are found in the registration laws of many states and may be challenged at any time.

Only when registration laws are based on a clear-cut, authoritative classification of technology will they be enforceable. Only when they cover the whole field of practice, protecting the novice as well as the consultant, will they be effective and fair.

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### Scheer Now Vice President of Amecco

Walter E. Scheer, M.A.I.C., general manager of Amecco Chemicals, Inc., Rochester, N. Y., has been elected vice president and director of that company. He will continue to make his headquarters at the New York Office.

The Heyden Chemical Corporation Penicillin Plant, at Princeton, N. J. was awarded the Army-Navy "E", for excellence in war production.

# What Licensing Would Do for the Chemist

**H. I. Jones, F. A. I. C.**

*Reprinted from the Chicago Bulletin, October,* 1945

THE time has come when the chemist must take increasing interest in his own welfare. His accomplishments throughout the war re-emphasized his indispensability to our social system. He will not, however, be given the position of dignity which he so justly deserves, unless he impresses his individual and collective importance on the lay public. State licensing of chemists is an initial step toward bringing about his recognition as a professional man. In itself, licensing is no panacea, but it is one step, and an exceedingly important one, in protecting the profession against some of the indignities which it has suffered. The profession of chemistry should rate at least as high as the medical, dental, legal, and engineering professions, all of which are licensed.

The chemists of the State of Illinois should take particular interest in licensing because it is the sole means of combating the recently passed amendment to the State Civil Service Law wherein chemical positions may now be given to applicants who have no college or university training in chemistry if they pass an examination. The amendment does, however, make the provision that in addition to passing of examinations, the applicant for a position in professions licensed by the state may be required to present a license. Since college or university training would be compulsory for a license to practice chemistry, this qualification for civil service positions could be retained despite the amendment.

As of today, the chemist has no legal standing in the sense that no laws cover him in Illinois or any other state, but the professions of medicine, dentistry, and law are licensed in all states of the Union. It is encouraging to know that the state of Illinois recently passed a law for the licensing of engineers. Although this law obviously serves the best interests of the citizens, the engineers found it necessary to work for ten years to convince the public and the law makers. The chemist must remember that in each case of professional licensing, the burden of proof has been carried by the members of the profession. Even physicians and

dentists had to overcome strong opposition from some of their own members as well as from outsiders before licensing laws were passed for their professions.

As much as the chemist stands to gain from licensing, he is by no means the sole benefactor. The life, health, and property of every citizen is endangered by the existing situation which allows any person who so desires to classify himself as a chemist. Almost every article of commerce, from pharmaceuticals to building materials, is submitted at some period in its production to a chemist who passes on its quality. An incorrect report may lead to substantial economic losses and even to loss of life. Our laws do not protect the public against such losses, a number of which have actually occurred.

One of the most tragic illustrations of incompetency in the chemical field is the seventy-three deaths resulting from dosage with sulfanilamide dissolved in diethylene glycol. (1) The supervision of a really competent chemist could have prevented this catastrophe. The American Medical Association reported:

> "Both chemical and medical literature contains references to the toxicity of diethylene glycol in the amounts recommended by the manufacturer. Diethylene glycol, administered in doses comparable to the dose recommended by the manufacturer of Elixir of Sulfanilamide-Massengill, acts as a cumulative poison. Surely there has been no blacker picture of the inadequacy of our present food and drug laws or the lack of common scientific decency in drug manufacture than that illustrated by this tragic disaster." (2)

The National Roster of Scientific and Specialized Personnel registers 60,932 persons as chemists. Of these 52,332 hold one or more degrees. Thus, out of every seven persons claiming to be a chemist, one is not adequately prepared to serve as a professional chemist. The public will continue to be duped by charlatans and quacks as long as there are no laws to govern the use of the term "chemist".

One would certainly not call in an untrained person for services on a medical, legal, or engineering problem. In many cases, it is a criminal offense to practice these professions without a state license. Yet anyone can practice chemistry regardless of his qualifications. This practice frequently endangers our very lives. The public, because it is uninformed, puts up with such conditions, but can we as chemists continue to close our eyes to such dangerous practices? Is it not up to the chemist to remedy this situation by insisting that proper legal means are taken to stop it?

1. J. Am. Med. Assoc. 109, 1727 (1937).
2. J. Am. Med. Assoc. 109, 1544 (1937).

It is true that scientific societies have committees on ethics to discourage unethical practice of chemistry, but they can do little more than discourage such practice. The licensing of chemists would give these societies a weapon with which to act when sub-standard actions were discovered. They would actually have some means to protect the public. This situation is vastly different from the existing one which permits the societies to do no more than regard an unethical member with disfavor or cancel his membership.

The confusion as to whether the chemist is a professional man or not is responsible for many of the conflicts with trade labor unions. Chemists are frequently called upon to see their laboratory experiments carried through the plant to commerical production. At times some of the best of them are found working with labor shifts, but even then they are acting in truly professional capacity. In a number of cases, however, trade labor unions have forbidden chemists to conduct plant runs unless they joined the union operating the plant. At these same plants in New York, engineers were allowed to work without interference because they were professional men, licensed by the state.

The forcing of chemists into trade labor unions has taken place in Illinois as well. At several companies in the Chicago area, chemists not employed in a supervisory capacity have been compelled to join trade labor unions. The chemist frequently is engaged in highly professional work which involves no supervision of other workers. His work may be as important as and require as much or more knowledge than that of a supervisor, but trade labor unions draw a line between these two groups. This situation is causing a schism within the chemical profession.

Under any system which regiments his life or his work, the chemist cannot give the best service of which he is capable. He must be unhampered by arbitrary restrictions and given every chance to use his initiative, imagination, and ability. Such freedom cannot be had when chemists are subject to union jurisdiction. Licensing, on the contrary, establishes professional recognition and gives chemists a legal right to pursue their professional interests.

One of the principal grievances voiced by chemists is against their relatively low incomes compared to those of professional men in other fields, and in the past few years, compared to the wages of skilled labor. This situation has made it possible for trade unions to incorporate some chemists into their organization. Labor unions, however, provide no permanent solution for this problem, whereas licensing does. The chemist's work is essentially individual in char-

acter. He cannot do his best work, therefore, when governed by mass rulings. Although he is guaranteed a minimum wage under the trade labor union, he will in time reach a maximum union wage regardless of his abilities to go higher. Licensing, however, helps to give the chemist recognition as a professional man, which carries with it high prestige and leaves his income a matter of ability and merit. If he is ranked along with other professional men in the eyes of society, he will be paid on their scale. The chemist, because of his nature and training, is not of the clock-punching type. He is more interested in seeing how much he can accomplish in a given time, but by subjecting himself to union rule, he is inhibiting his natural abilities.

The importance of public recognition to the financial status of the chemist must be emphasized. Public recognition will be brought about much more readily if *legal "teeth"* exist to back it up. Futhermore, executive management of small or large companies will be much more willing to pay high salaries, if it is assured that it is employing bona fide chemical personnel, licensed by the state. The reputation of a chemist may seem to be a nebulous factor but it is an important one. The profession cannot afford to allow quacks posing as "chemists" to degrade the standing of competent and honest men.

The licensing bills now being prepared in several states prescribe the minimum requirements which will insure that the holder of a license is actually qualified to practice his profession. In these bills, it was considered unnecessary to provide for special licenses in various fields such as biochemistry, electrochemistry, etc. Such a procedure was not found necessary by other state licensed professions such as medicine and law. Engineers practice in very diversified fields, but one hears no reports of electrical engineers attempting to design and construct bridges.

At present, bills for the licensing of chemists are being prepared in Illinois, New York, and Ohio. The Councilors of the New York section of the American Chemical Society, (1939) voted in favor of licensing chemists. The Chicago section of the A.C.S. has voted favorably for a state licensing act for Illinois. A questionnaire sent to chemists in Ohio showed that 83 per cent of those who expressed their opinion "believe the A.C.S. should report favorably on State Registration for Chemists".

The Chicago Section of the A.C.S. has appointed a committee to study the question of licensing and to prepare "an ideal bill" which may be used as a basis for legislation. The Chicago A.C.S. Section Committee is working in close cooperation with a committee of the Chicago Chapter

of THE AMERICAN INSTITUTE OF CHEMISTS to study and formulate the "ideal licensing bill".

Passage of such a bill in Illinois is highly desirable in the interests of protecting the citizens of the state. The chemist stands to profit as a citizen and as a professional man. The assistance of every chemist in the State of Illinois is needed to achieve this purpose.

## Research

Progress in scientific research and development is an indispensable condition to the future welfare and security of the nation. The events of the past few years are both proof and prophecy of what science can do.

Science in this war has worked through thousands of men and women who labored selflessly and, for the most part anonymously in the laboratories, pilot plants, and proving grounds of the nation.

Through them, science, always pushing forward the frontiers of knowledge, forged the new weapons that shortened the war.

Progress in science cannot depend alone upon brilliant inspiration or sudden flights of genius. We have recently had a dramatic demonstration of this truth. In peace and in war, progress comes slowly in small new bits,from the unremitting day-by-day labors of thousands of men and women.

No nation can maintain a position of leadership in the world of today unless it develops to the full its scientific and technological resources. No Government adequately meets its responsibilities uless it generously and intelligently supports and encourages the work of science in university, industry, and in its own laboratories.

During the war we have learned much about the methods of organizing science, and about the ways of encouraging and supporting its activities.

The development of atomic energy is a clear-cut indication of what can be accomplished by our universities, industry, and Government working together. Vast scientific fields remain to be conquered in the same way.

### For Federal Research Agency

In order to derive the full profit in the future from what we have learned, I urge upon the Congress the early adoption of legislation for the establishment of a single Federal research agency which would discharge the following functions:

1. Promote and support fundamental research and development projects in all matters pertaining to the defense and security of the nation.

2. Promote and support research in the basic sciences and in the social sciences.

3. Promote and support research

in medicine, public health, and allied fields.

4. Provide financial assistance in the form of scholarships and grants for young men and women of proved scientific ability.

5. Coordinate and control diverse scientific activities now conducted by the several departments and agencies of the Federal Government.

6. Make fully, freely, and publicly available to commerce industry, agriculture, and academic institutions the fruits of research financed by Federal funds.

Scientific knowledge and scientific research are a complex and interrelated structure. Technological advances in one field may have great significance for another apparently unrelated. Accordingly, I urge upon the Congress the desirability of centralizing these functions in a single agency.

Although science can be coordinated and encouraged, it cannot be dictated to or regimented. Science cannot progress unless founded on the free intelligence of the scientist. I stress the fact that the Federal Research Agency here proposed should in no way impair that freedom.

Even if the Congress promptly adopts the legislation I have recommended, some months must elapse before the newly established agency could commence its operations. To fill what I hope will be only a temporary gap, I have asked the Office of Scientific Research and Development and the Research Board for National Security to continue their work.

Our economic and industrial strength, the physical well-being of our people, the achievement of full employment and full production, the future of our security, and the preservation of our principles will be determined by the extent to which we give full and sincere support to the works of science.

It is with these works that we can build the highroads to the future.

— *Excerpt from*
PRESIDENT TRUMAN'S ADDRESS
*September* 6, 1945

**Limit Government in Science**

**National Association of Manufacturers:** "American industry leads the world in the application of science to the improvement of living standards . . . Private industry contributed more than two-thirds of all the funds spent for scientific research in the United States before the war . . . Its magnificent record in applying science to the improvement of the standard of living is an achievement of which every American should be proud . . . Some of the dangers of Government control of research have been effectively stated by Dr. Karl T. Compton, president of the Massachusetts Institute of Technology:

'If, however, the whole burden of

this support were undertaken by Government, there would be obvious dangers such as allocation for political purposes, or, what may be nearly as bad, blindfold distribution in order to escape political influence. There would be risk of lack of continuity and of entrenching another bureaucracy. There would be risk of directing funds toward objectives appealing to the imagination of blocks of voters rather than toward the most fundamental advancement of knowledge.'

"While it is generally recognized that the Federal Government should engage in research particularly for national defense and in long-range problems not likely to be undertaken by private industry or privately supported institutions, scientists as well as manufacturers feel that the role of Government in science should be carefully limited."

Gustav Egloff, president of THE AMERICAN INSTITUTE OF CHEMISTS, spoke September 13th, before the Officers' group at Vaughan General Hospital, Hines, Illinois, on "New Things for More People." The talk was given in cooperation with the Chicago Chapter of the American Red Cross, which has been asked by the military naval hospitals in this area to assist in their reconditioning and rehabilitation programs.

**Atomic Bomb Builders**

Monsanto Chemical Company announces the participation of Dr. Charles Allen Thomas, Dr. Carroll A. Hochwalt, and Dr. W. Conard Fernelius, all Fellows of THE AMERICAN INSTITUTE OF CHEMISTS, in the development of the atomic bomb. It is hoped that as more information is released, we can pay due honor to those other members of the INSTITUTE who have likewise contributed to this epic-making development.

**Cancer Institute Established**

The Alfred P. Sloan Foundation has set up a grant of $4,000.000 for the formation of the Sloan-Kettering Institute of Cancer Research.

Ora Blanche Burright, F.A.I.C., nutrition consultant, formerly at 152 West 42nd Street, recently moved her offices to 5 Beekman Street, New York 7, N. Y., where she specializes in industrial problems on nutrition.

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# For Your Library

THE FUTURE OF INDUSTRIAL RESEARCH. The Standard Oil Development Company, New York 20, N. Y. 174 pp. 6″ x 9″. 1945.

This book contains the papers and discussion presented at the Silver Anniversary Forum, held October, 1944, of the Standard Oil Company. The papers are grouped into three sections, each of which is governed by a theme.

Part One: "What should be the guiding principles and objectives for the commercial programs of industrial and development organizations?" Under this section are presented papers by Frank B. Jewett, Thomas Midgley, Jr., Harry L. Derby, and Bradley Dewey.

Part Two: "How can small business serve itself and be served by industrial research and development?" Authors under this section are: Edwin H. Land, Westbrook Steele, Earl P. Stevenson, Clyde E. Williams, and A. C. Fieldner.

Part Three: "What place should industrial research and development organizations allocate to future work directed primarily toward national security?" Robert P. Patterson writes on this question, followed by brief discussions.

Cooperation among universities, government, private institutions, and large and small-scale industrial research is urged. Research is an important factor in the economic and political future of the United States. The recognition of the importance of our scientific personnel to America's future is encouraging, particularly at this time, when our future is for us to determine.

This book is cloth-bound, and prepared with exceptional attention to lay-out, printing, and design.

PENSION, BONUS AND PROFIT-SHARING PLANS. By E. B. Gardner and C. J. Weber of the Chase National Bank, 11 Broad Street, New York, N. Y. 92 pp. 8″ x 10″.

This brochure contains much valuable information for both the employer and the employee. Various pension plans, actuarial factors and methods of financing are discussed in terms the uninitiated can readily understand. While the book originally appeared in 1943, its recent reannouncement at this time of great labor-turnover emphasizes the value of such plans in furthering better employer-employee relationships.

—*A. S.*

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*Technical Bulletin,* Number 270.8 of the Acheson Colloids Corporation, Port Huron, Michigan, discusses the "Utility of Graphite Surfaces".

### Last Call for Roster Data

The new roster of THE AMERICAN INSTITUTE OF CHEMISTS will be a virtual "Who's Who" of the chemical profession.

It is most important to you as well as to the INSTITUTE that it include data on all our members.

If your data are not received by November first, you can be listed only by name.

If you have not already done so, please return your data sheet immediately.

—*A. S.*

### Fellowships Offered for Advanced Science Study

The Eastman Kodak Company, Rochester, N. Y., has announced that it will contribute twenty-two annual fellowships for male graduate students in five fields of study, "to assist universities in reducing the postwar dearth of young men with advanced technical training." Twelve of these fellowships are for advanced work in chemistry and physics. One of these is designated for doctoral study in chemical engineering at Massachusetts Institute of Technology; another is for study of physical chemistry at the University of Rochester, and a third for work in organic chemistry at the University of Illinois.

### Industrial Research Laboratories Directory

The National Research Council, Washington 25, D. C., is now compiling the eighth edition of the directory, "Industrial Research Laboratories In the United States". The seventh edition appeared in 1940 and listed the industrial research laboratories of 2,264 companies and their subsidiaries. The new edition will include research laboratories established since that time.

### Geological Map of Canada

A new geological map of the Dominion of Canada has been issued by the Department of Mines and Resources, Ottawa, Canada. It may be obtained from the Chief, Bureau of Geology and Topography, of that Department, at a price of fifty cents.

The Department of Commerce has issued a manual entitled, "Medicinal Products, United States Equivalents and Alternatives", designed to acquaint Latin American physicians and pharmacists with the medicinal products of the United States which are equivalent to those formerly purchased by South America from Germany. Copies may be obtained from the Superintendent of Documents, Washington 25, D. C., or from any Department of Commerce Field Office, at fifty cents each.

# Chemical Condensates

**Ed. F. Degering, F. A. I. C.**

Four new nitrogen fixation plants, with a capacity of 52,000 metric tons annually, are planned in Spain for the production of fertilizer nitrogen.

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A large seaweed processing plant for the production of chemicals has been built, by Cefoil Company, near Boisdale on South Uist of the Hebrides. One important type of product includes the sodium, ammonium, and triethanolamine alginates.

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*Ardil* is the trade name of a wool-like synthetic fiber which has been developed from the protein of peanuts by the research laboratories of the Imperial Chemical Industries.

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Science Service states that "the toxicity of DDT combined with its cumulative action and absorbability from the skin places a definite health hazard on its use."

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To shoot a machine gun in practice the Army now spends only $6.00 per minute, as against $180 spent formerly. Plastic pellets and compressed air are used instead of expensive bullets and gunpowder for training soldiers.

Rutin, which is an extract of flue-cured tobacco, is claimed to be effective in treating *increased capillary fragility,* which is a form of high blood pressure.

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The inhalation of Penicillin, in the form of an aerosol, has been claimed to be effective in the treatment of pneumonia.

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G. I. Joe has discovered that dimethyl phthalate does a two-fold job when used as a hair goo: it is claimed to serve very well as both a stay-comb and a mosquito repellent.

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Hyoscine, known also as scopolamine, has been reported used effectively in preventing airsickness at the Naval Training Center at Pensacola. Pills containing hyoscine are ingested about an hour before the take-off.

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Practically pure pryethrins can be obtained from the petroleum extract of pryethrum flowers by the use of nitromethane as a selective solvent. The distillation of the nitromethane leaves pyrethrins which have no irritating residues. These products are particularly useful in the manufacture of odorless household fly sprays.

## Meeting Dates

Oct. 2. Pennsylvania Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Engineers' Club. Philadelphia. Speaker: Arthur Schroder, executive director, A.I.C., "What the Institute Does for the Chemist."

Oct. 26. Chicago Chapter, THE AMERICAN INSTITUTE OF CHEMISTS. Huyler's Restaurant, 310 South Michigan Ave., Chicago. Testimonial Dinner to Dr. Donald B. Keyes.

Nov. 6. Pennsylvania Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Engineers' Club. Philadelphia. Speaker: Dr. Joseph Mattiello, technical director, Hilo Varnish Corporation, "Protective Organic Coatings."

Nov. 30. Chicago Chapter, THE AMERICAN INSTITUTE OF CHEMISTS. Huyler's Restaurant, 310 South Michigan Avenue, Chicago. Dinner 6 p.m. followed by meeting.

Dec. 4. Pennsylvania Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Engineers' Club. Philadelphia. Speaker: Walter J. Baeza, consultant, Industrial Research Company "Powder Metallurgy".

Feb. 5. Pennsylvania Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Engineers' Club. Philadelphia. Speaker: Commander Aubry H. Hamilton, USN, "Control of Tropical Diseases."

Feb. 10. Chicago Chapter, THE AMERICAN INSTITUTE OF CHEMISTS. Huyler's Restaurant, 310 South Michigan Avenue, Chicago. Dinner 6 p.m. followed by meeting.

Mar. 5. Pennsylvania Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Engineers' Club. Philadelphia. Speaker: Dr. Gerald P. Wendt, science editor, *Life* and *Time* magazines, "World Wide Chemistry".

Mar. 30. Chicago Chapter, THE AMERICAN INSTITUTE OF CHEMISTS. Huyler's Restaurant, 310 South Michigan Avenue, Chicago. Dinner 6 p.m. followed by meeting.

Apr. 2. Pennsylvania Chapter. THE AMERICAN INSTITUTE OF CHEMISTS. Engineers' Club. Philadelphia. Speaker: Walter J. Murphy, editor, *Industrial and Engineering Chemistry*. "The Chemist as Demobilized from the Armed Forces."

May (date to be announced) Plant trip.

June 1. Chicago Chapter, THE AMERICAN INSTITUTE OF CHEMISTS. Huyler's Restaurant, 310 South Michigan Avenue, Chicago. Dinner 6 p.m. followed by meeting.

## Smyth to Speak on Atomic Energy

Henry D. Smyth, chairman of the Department of Physics, Princeton University, will speak on "Atomic Energy" before the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS, Thursday, October 25th, at a dinner and meeting to be held at No. 2 Park Avenue, New York, N. Y.

Dr. Smyth is consultant to the Manhattan Project of the U. S. Engineers. He wrote the official report on the development of the atomic bomb, entitled 'Atomic Energy for Military Purposes", just published by Princeton University Press.

A native of Clinton, New York, Dr. Smyth received the Ph.D. degree from Princeton in 1921, followed by two years of work in England as National Research Fellow. He was awarded the Ph.D. by Cambridge University in 1923, and then returned to Princeton, where he was successively instructor, assistant professor, and associate professor, becoming full professor in 1936. Since 1935, he has been chairman of the Department of Physics. From 1931 to 1932, he was Guggenheim Memorial Foundation Fellow at Goettingen, Germany.

He has contributed to scientific journals, including *Physical Review*, of which he was editor from 1927 to 1930, and he is the author of "Matter, Motion, and Electricity". His scientific memberships include Phi Beta Kappa, Sigma Xi, and the American Physical Society. His contributions to the fields of ionization of gases; positive ray analysis, and molecular structure, are noteworthy.

Rolfe H. Ehrmann, M.A.I.C., is now assistant technical editor of *India Rubber World*.

## Taylor Retires from Government Service

J. N. Taylor, a charter and life member of the INSTITUTE, retired from the Government service on August 31st. At the time of his retirement, Mr. Taylor was acting chief of the Chemical Unit, Bureau of Foreign and Domestic Commerce, with which he had been associated since 1927. Prior to that time, for eighteen years, he conducted chemical research in the U. S. Department of Agriculture. During the years spent in the Bureau of Foreign and Domestic Commerce, he specialized in the fields of organic chemicals, pharmaceuticals, perfumery, plastics, dyes, and similar products. His specialties brought him in close contact with practically all of the leading chemical firms handling these products, and in addition, he published many trade articles devoted to the purpose of fostering domestic and export business.

Although Mr. Taylor has retired from active Government service, he plans to engage in specialized consulting work, dealing with the problems of business in the organic chemical field. After a short vacation, he will be located in his home town, 112 West South Street, Smyrna, Delaware.

Seymour Singer received the Du Pont postgraduate fellowship in chemistry at the Polytechnic Institute of Brooklyn for the 1945-46 academic year, according to an announcement by Raymond E. Kirk, F.A.I.C., head of the Department of Chemistry and dean of the graduate school. A member of Phi Beta Kappa, Mr. Singer received the Master's degree from Columbia University this year. He will work with the Polytechnic's Highpolymer Research Bureau.

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### Millikan Retires

Robert A. Millikan, physicist and Nobel Prize winner in 1923, retired, August twentieth, as administrative head of the California Institute of Technology. Dr. Millikan is a member of the board of trustees and its vice president, and will continue his research and writing.

### Service To Institute Members

The columns of THE CHEMIST are available without charge to all members of THE AMERICAN INSTITUTE OF CHEMISTS who are either seeking chemists or looking for new positions.

### Positions Available

Permanent positions available for young chemists in Research Laboratory of large and well-established toilet goods manufacturing company. Location, New England. B.S. or M. S. required. Previous experience not required. Give full particulars and salary expected. Please reply to Box 103, THE CHEMIST.

### Chemists Available

RESEARCH ORGANIC CHEMIST. F.A.I.C., Ph.D. 28 years old, desires position as project leader or senior organic chemist in progressive pharmaceutical organization. Eight years teaching and industrial experience, including research on steroids, hormones, vitamins, heterocyclics and organo-metallics. Patents and publications. Available within reasonable time. East or Far West preferred. Minimum salary $5200 yearly. Please reply to Box 100, THE CHEMIST.

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WOMAN CHEMIST. F.A.I.C. Ph.D. organic chemistry. University and college teaching, organic synthesis, sex hormones research. Supervising laboratories, literature research, translating from French, German, Italian. Please reply to Box 102, THE CHEMIST.

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**Please Note**

The initials of Dr. Summerbell, author of "The Responsibility of the University in Training Chemists for Industry", which appeared in the August issue of THE CHEMIST, are "R. K."

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## STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, etc. REQUIRED BY THE ACTS OF CONGRESS OF AUGUST 24, 1912, and MARCH 3, 1933

Of THE CHEMIST, published monthly at New York, N. Y., for October 1, 1945.

STATE OF NEW YORK } ss.
COUNTY OF NEW YORK }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Vera F. Kimball, editor, who, having been duly sworn according to law, deposes and says that she is the Editor of THE CHEMIST and that the following is, to the best of her knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, as amended by the Act of March 3, 1933, embodied in section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

| Name of | Post Office Address |
|---|---|
| Publisher: THE AMERICAN INSTITUTE OF CHEMISTS, | 60 E. 42nd Street, New York 17, N. Y. |
| Editor: Vera F. Kimball, | 60 E. 42nd Street, New York 17, N. Y. |
| Managing Editor: T. S. McCarthy, | 59 John St., New York, N. Y. |

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given).

THE AMERICAN INSTITUTE OF CHEMISTS, INC., 60 East 42nd Street, New York 17, N. Y.

(Non-profit making corporation. No stockholders.)

Gustav Egloff, President, Universal Oil Products Company, Chicago, Illinois.

Donald Price, Vice-president, Oakite Products Inc., 22 Thames Street, New York, N. Y.

Frederick A. Hessel, Treasurer, 4 Cherry Street, Montclair, N. J.

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3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) NONE.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by her.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the twelve months preceding the date shown above is——. (This information is required from daily publications only.)

Vera F. Kimball
(Signature of Editor)

Sworn to and subscribed before me this first day of September, 1945.
Catherine M. Heider, Notary Public.
(My commission expires March 30, 1947).

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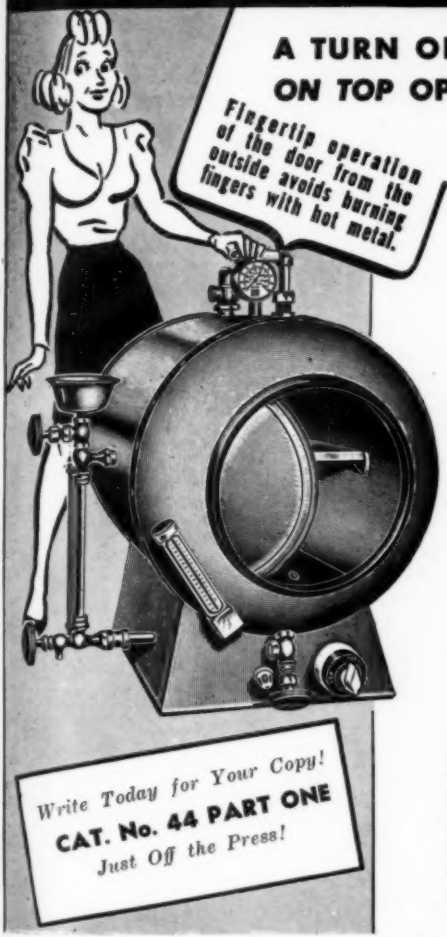


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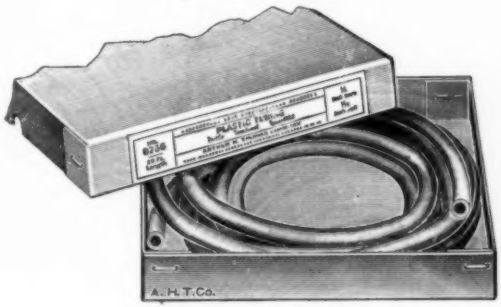


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